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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,444	12/14/2001	Timothy A. Thomas	CR00296M	6296

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EXAMINER

WILLIAMS, LAWRENCE B

ART UNIT PAPER NUMBER

2638

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/017,444	THOMAS ET AL.	
	Examiner	Art Unit	
	Lawrence B. Williams	2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,5,10,15,16,18,20,21,26 and 31-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15,16,18,20,21 and 26 is/are allowed.
- 6) ☒ Claim(s) 3,5,10 and 31-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 15 is objected to because of the following informalities: The examiner suggests applicant replace the phrase “ plurality of streams” with “plurality of stream” in line 5 of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 3-5 are rejected under 35 U.S.C. 112, second paragraph, Claim 3 recites the limitation "the channel" in line 3. There is insufficient antecedent basis for this limitation in the claim.

4. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, Claim 10 recites the limitation "an initial value of the channel vector" and “a statistical nature of the channel vector” in lines 4, and 5, respectively. There is insufficient antecedent basis for this limitation in the claim.

5. Claims 31-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 31 cites the limitation “ based on a statistical nature of the channel vectors and a noise power” in line 6 of the claim. No prior calculation or determination of “the channel

vector” has been mentioned in the claim. The examiner is unable to ascertain what applicant regards as the invention from the language of the claim as presently presented. Accordingly, the claims have not been further treated on the merits.

6. Claims 31-39 are rejected under 35 U.S.C. 112, second paragraph. Claim 31 recites the limitation "the channel vectors" in 6. There is insufficient antecedent basis for this limitation in the claim.

Allowable Subject Matter

7. Claims 15-16, 18, 20-21, 26 are allowed.

8. Claim 3 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

9. Claim 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. Claim 10 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

11. The following is a statement of reasons for the indication of allowable subject matter: A search of prior art records has failed to disclose a method of operating a transmitter comprising:

“(3) determining a first stream weight of the plurality of stream weights having the largest mean square error; (4) increasing a power of the first stream weight; (5) decreasing a power of each stream weight of the plurality of stream weights excluding the first stream weight; and repeating steps (2) through (5) when all of the mean square errors of the plurality of stream weights are unequal” as disclosed in claim 3.

“(1) initializing a first steam weight; (2) establishing a resolution value, an initial value of the increment and a statistical nature of the channel vector; (3) determining a weighting of a plurality of stream weighs excluding the first stream weight; (4) determining a power variable; (5) increasing the first stream weight by a product of the power variable and an increment; (6) dividing the increment a factor subsequent to increasing the first stream weight by a product of the power variable and the increment; (7) determining a weighting of a plurality of stream weights excluding the first stream weight; and repeating steps 4-7 when the increment is greater than the resolution value” as disclosed in claim 10.

Nor does the prior art teach a transmitter, comprising: a module; “wherein, to determine the first unequal weighting of the plurality of stream weights, said module is further operable to: (1) determine a mean square error for each steam weight of a plurality of stream weights; (2) determine a first stream weight of the plurality of stream weights having the largest mean square error; (3) increment a power of the first stream weight; and (4) decrease a power of each stream weight of the plurality of stream weights excluding the first stream weight and repeat

steps (1) through (4) when all of the mean square errors of the plurality of stream weights are unequal” as disclosed in claim 15.

CONCLUSION

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Ketchum et al. discloses in US 2003/0048856 A1 Method And Apparatus For Processing Data For Transmission In A Multi-Channel Communication System Using Selective Channel Inversion.

b.) Kim et al. discloses in US 2006/0039394 A1 Apparatus And Method For Beamforming In A Multi-Antenna System.

c.) Oprea discloses in US 2004/0192218 A1 System And Method For Channel Data Transmission In Wireless Communication Systems.

d.) Ertel et al. discloses in US 2002/0141587 A1 Code Assignment Algorithm For Synchronous DS-CDMA Links With SDMA Using Channel Scanning.

e.) Corbaton et al. discloses in US 2003/0035468 A1 System And Method For Adjusting Combiner Weights Using An Adaptive Algorithm In Wireless Communications System.

f.) Walton et al. discloses in US 2003/0043732 A1 Method And Apparatus For Processing Data For Transmission In A Multi-Channel Communication System Using Selective Channel Transmission.

g.) Walton et al. discloses in US Patent 6,785,341 B2 Method And Apparatus For

Processing Data For Transmission In A Multiple-Input Multiple-Output (MIMO)
Communication System Utilizing Channel State Information.

h.) Liang et al. discloses in US 2001/0061768 A1 Beam Synthesis Method For Downlink
Beamforming In FDD Wireless Communication System.

i.) Chun et al. discloses in US 2002/0000948 A1 Semi-Blind Transmit Antenna Array
Device Using Feedback Information And Method Thereof In A Mobile Communication System.

j.) Kavak et al. discloses in US 2003/0114193 A1 System And Method For Improving
Performance Of An Adaptive Antenna Array In A Vehicular Environment.

k.) Kasapi discloses in US 2003/0064690 A1 System And Related Methods For
Introducing Sub-Carriers Diversity In A WideBand Communication System.

13. Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037.
The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the
organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2638

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw

March 3, 2006

EMMANUEL BAYARD
PRIMER EXAMINER
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